

DEMERSAL FISH COMMITTEE

1978

K. Hoydal

Belgium

(R. De Clerck)

The determination of the density and the growth per year class of sole, plaice, dab, flounder and gadoids along the Belgian coast has been continued on the R.V. "Hinders".

Two cruises were carried out for the demersal young fish survey in collaboration with the Netherlands and the Federal Republic of Germany.

The market sampling was continued covering cod, North Sea; whiting, North Sea; haddock, North Sea; plaice, North Sea/English Channel/Bristol Channel/Irish Sea; sole, North Sea/English Channel/Bristol Channel/Irish Sea.

Species/ Area	Season	No. of samples		No. of samples	
		Research	Market	Measured	Aged
<u>Sole</u> IV	1	-	8	755	210
	2	-	10	1079	210
	4	-	12	1275	210
VIIIf	1	-	12	1297	210
	4	-	7	893	210
VIIa	1	-	5	307	210
	2	-	6	622	210
	4	-	2	140	140
VIIId, e	1-4	-	11	974	480
<u>Plaice</u> IV	1	-	7	388	150
	2	-	8	489	150
	4	-	12	664	150
VIIIf	1-4	-	19	1196	300
VIIa	1-4	-	8	498	250
VIIId, e	1-4	-	10	566	240
<u>Cod</u> IV	1	-	7	260	260
	2	-	5	260	260
	4	-	5	265	265
<u>Whiting</u> IV	1	-	7	150	150
	2	-	5	110	110
	4	-	5	195	195
<u>Haddock</u> IV	1-4	-	4	339	

Canada

(P. F. Lett)

Nothing to report.

Denmark (with Faroe Islands)

The R.V. "Jens Chr. Svabo" took part in the Young Fish Survey in the North Sea in February/March 1978.

Sampling

Species, Area	Season	No of samples		No of fish	
		Research vessel	Market	Measured	Aged
<u>Cod</u> North Sea IV	I	-	15	582	582
	II	-	11	636	636
	III	-	27	595	595
	IV	-	21	607	607
Skagerrak	I	-	9	360	360
	II	-	5	242	242
	III	-	69	741	741
	IV	-	71	831	831
Kattegat	I	-	13	459	459
	II	-	12	358	358
	III	-	36	615	615
	IV	-	36	623	623
<u>Haddock</u> North Sea IV	I	-	60	277	277
	II	-	6	38	38
	III	-	61	453	453
	IV	-	91	589	589
Skagerrak	III	-	59	539	539
	IV	-	63	324	324
Kattegat	III	-	28	219	219
	IV	-	14	34	34
<u>Whiting</u> North Sea IV	I	-	66	565	565
	II	-	38	147	147
	III	-	71	525	525
	IV	-	101	639	639
Skagerrak	I	-	1	64	64
	II	-	8	8	8
	III	-	99	7011	7011
	IV	-	80	3156	3156

...continued

Species, Area	Season	No of samples		No of fish	
		Research vessel	Market	Measured	Aged
<u>Whiting</u> (ctnd)					
Kattegat	I	-	8	144	144
	II	-	9	57	57
	III	-	44	4074	4074
	IV	-	36	1404	1404
<u>Norway Pout</u>	I	-	69	9088	9088
North Sea IV	II	-	7	593	593
	III	-	69	4213	4213
	IV	-	94	4133	4133
Skagerrak	III	-	29	1372	1372
	IV	-	74	2369	2369
Kattegat	III	-	7	258	258
	IV	-	20	552	552
<u>Sandeel</u>	I	-	14	1546	1546
North Sea IV	II	-	94	9082	9082
	III	-	66	6073	6073
	IV	-	9	850	850
Skagerrak	II	-	15	892	892
	III	-	51	2115	2115
	IV	-	4	62	62
<u>Plaice</u>	I	-	6	467	467
North Sea IV	II	-	6	1230	1230
	III	-	6	1081	1081
	IV	-	6	1268	1126
Skagerrak	I	-	8	1357	1357
	II	-	6	773	773
	III	-	6	1169	1169
	IV	-	4	979	979
Kattegat	I	-	4	795	795
	II	-	6	817	817
	III	-	6	1622	1622
	IV	-	6	1548	1548
<u>Sole</u>	II	-	1	1412	609
North Sea IV					

The R.V. "Jens Chr. Svabo" worked in the Faroe area all the year except in February when it took part in the Young Fish Survey in the North Sea. During June-July "Svabo" participated in the International O-group Fish Survey in the waters around the Faroes.

Sampling on full scale was made of the three main stocks in the Faroe area and cod and haddock on Faroe Bank. Some sampling has been started on Blue Ling and Redfish from the Faroe area.

Sampling

Area V _{b1}	No. of samples	Measured	Sample weight kg	No. of sampl.	Measured	Sample weight kg
	Cod			Haddock		
Gear						
Trawl	26	5130	13553	9	3232	3861
Longline	26	5653	12776	15	6630	8944
Handline	16	2455	5001			
Gill net	8	1678	6406			
		Aged			Aged	
Age samples	56	2319		19	1029	

Area V_{b2}

	Cod			Haddock		
Trawl	4	143	626	2	722	1111
Longline	15	1185	9285	6	1292	2660
		Aged			Aged	
Age samples	14	649		5	340	

Area V_b total

	Saithe		
Trawl	16	3992	16203
Handline	5	479	3178
Gill net	5	1421	6896
		Aged	
Age samples	22	1258	

Finland

(V. Sjöblom and E. Aro)

No work was carried out on demersal fish other than that reported to the Baltic Fish Committee.

France
(J. Guéguen)

I - Travaux réalisés par l'Institut Scientifique et Technique des Pêches Maritimes
(ISTPM)

1) Travaux à la mer -

La "Thalassa" a participé à trois campagnes d'inventaires au cours de l'année : IYFS du 4 au 13 février en Mer du Nord, jeune lieu noir du 10 mai au 9 juin aux Féroé et poissons de fond en Mer Celtique et Mer d'Irlande du 23 novembre au 13 décembre.

La "Pélagie" a pris part à la campagne DYFS du 18 septembre au 4 octobre en Manche. Par ailleurs, pour l'étude du stock de merlu du Golfe de Gascogne, elle a effectué quatre campagnes pour l'étude de la reproduction de février à mai et une campagne de routine pour l'évaluation du recrutement du 15 au 24 novembre.

Le N.O. "Roselys" a été utilisé pour l'étude des frayères et des nurseries côtières : en avril-mai et novembre-décembre en Manche et en juin et novembre-décembre dans le golfe de Gascogne. Ces missions ont également permis d'effectuer les marquages suivants :

		<u>VII e</u>	<u>VII d</u>	<u>VIII a</u>
mai-juin	{ sole	133	29	192
	{ plie	137	165	5
décembre	raie bouclée	36	-	-

En zone côtière des sorties mensuelles systématiques à bord de navires professionnels loués ont eu lieu toute l'année soit pour étudier les nurseries soit pour étudier les sites pressentis pour recevoir les effluents de centrales thermo nucléaires.

2) Travaux à terre -

Un échantillonnage systématique des captures débarquées par les navires commerciaux français a été poursuivi dans les ports de Boulogne, Lorient et La Rochelle. Ce travail a notamment permis de préciser les relations taille-poids pour le lieu noir, la morue, le merlan et l'églefin et de disposer de clefs taille-âge pour ces mêmes espèces.

La collecte de données sur l'effort de pêche a été poursuivie dans les ports du sud Bretagne et à la Rochelle.

II - Travaux réalisés par d'autres organismes (CRSTOM)

a) Centre du Congo-Pointe-Noire

L'étude d'un plan d'exploitation rationnelle des stocks de poissons démersaux du Congo est terminée et a fait l'objet d'un mémoire de thèse d'état. Actuellement les activités sur le terrain se limitent aux récoltes bimensuelles de statistiques et de données biométriques sur : Pseudotolithus typus, P. senegalensis, Galeoïdes decadactylus, Pentanemus quinquarius, Pteroscion poli et Brachydenterus auritus.

b) Centre d'Abidjan

Les études poursuivies depuis une dizaine d'années ont pour but la mise au point de modèles de gestion rationnelle des ressources.

Un modèle concernant l'ensemble des poissons de chalut du plateau continental ivoirien est actuellement en cours d'élaboration. Les observations biologiques sont actuellement limitées à deux espèces, Pomadasys jubelini et Balistes capriscus. Cette dernière espèce pose un problème particulier : pratiquement absente avant 1970, elle est devenue à partir de 1972 le constituant le plus important de la biomasse benthique (et peut-être pélagique) au Togo, au Ghana et en Côte d'Ivoire. L'étude dynamique de ce stock exige une approche particulière car le baliste n'est pas exploité en Côte d'Ivoire. Deux campagnes de chalutage utilisant les techniques de l'échantillonnage stratifié ont permis de chiffrer à 8 000 t la biomasse de balistes vivant sur le plateau ivoirien.

Parallèlement, l'utilisation de modèles de production globaux intégrant les données de prises et d'effort disponibles depuis 1958 a permis de chiffrer le niveau moyen maximum des prises. Deux courbes d'équilibre ont été obtenues pour les périodes 1958-1971 et 1972-1977.

III - Echantillonnages effectués à bord de navires de recherches
ou sur les marchés français.

région	saison	Nb d'échantillons		Nb poissons mesurés	Nb otolithes prélevés
		Nav. recherche	marché		
roussette					
VII e	2ème trim	+		194	
VIII a		+		10	
VII e	4ème trim	+		235	
VIII a		+		53	
raie bouclée					
VII d	2ème trim	+		48	
VII e		+		100	
VIII a		+		10	
VII d	3ème trim	+		111	
VII e		+		118	
VII a	4ème trim	5		476	
VII e		+		169	
VII f		2		37	
VII g		5		65	
VIII a				23	
merlu					
VIII ab	1er trim		18	2 701	
VIII c			+	569	
IV	2ème trim	+		64	
VII e			)	263	
f			)	421	
g			)	219	
h			)	447	
VIII ab		+	10	5 104	
VII f	3ème trim		)	637	
h			)	796	
VIII a b			7	384	
VII a	4ème trim	3		41	
VII c			)	227	
f		5	)	589	
h			)	232	
g		11	)	306	
VIII a b		++	3	7 424	984
cabillaud					
IV	1er trim	+		2 648	609
VI a			2	194	
VII a			2	345	
VII f			2	369	
VII g			1	124	

région	saison	Nb d'échantillons		Nb poissons mesurés	Nb otolithes prélevés
		Nav. recherche	marché		
cabillaud (suite)					
IV	2ème trim	+		217	217
V b		+		4 749 juv	
VI a			3	420	
VII a			1	319	
VII f			1	230	
VII g			2	230	
VI a	3ème trim		2	399	
VII a			2	238	
VII g			2	664	
VI a	4ème trim		1	293	
VII a		4	2	438	110
VII g		6	3	457	30
VII d			1	29	
merlan					
IV	1er trim	+		6 559	1 283
VI a			1	264	
VII a			1	115	
VII f			3	897	
IV	2ème trim	+		1 477	429
VI a			2	520	
VII a			3	980	
VII b			1	66	
VII d		+		1 074	
VII e		+		165	
VII f			3	623	
VII g			1	283	
VIII a		+		24 086	
IV	3ème trim	+		120	
VI a			2	472	
VII a			1	307	
VII d		+++		2 726	
VII e		+		41	
VII f			2	432	
VII g			3	505	
IV	4ème trim	+	1	314	244
VI a			1	252	
VII a		12	2	1 741	120
VII d		+		438	
VII e		+		1 918	
VII f		4		233	150
VII g		13	1	914	160
VIII a		+		5 642	

région	saison	Nb d'échantillons		Nb poissons mesurés	Nb otolithes prélevés
		Nav. recherche	marché		
églefin					
IV	1er trim	+		4 091	325
VI a			3	1 218	
VII f			1	140	
IV	2ème trim	+		1 898	240
VI a			2	541	
VII f			1 + 1	310	
VII g			1	214	
VI a	3ème trim		2	445	
VII a			1	187	
IV	4ème trim		1	126	
VI a			2	439	
VII a			1	228	
VII c		1		14	
VII g		4	1	218	41
lieu noir					
VI a	1er trim		3	678	130
IV	2ème trim	+		1 809	305
VI a			2	443	146
V b		1		4 790 juv.	
VI a	3ème trim		4	918	150
VII f			1	120	
VI a	4ème trim		2	488	170
VII g		1		17	
lieu jaune					
VII g	4ème trim		1	72	
tacaud					
IV	1er trim	+		424	48
VII d		+		6	
VII e		+		6	
IV c	2ème trim	+		693	
VII d		++		4 625	
VII e		++		3 408	
VIII a		+		124 959	
IV c	3ème trim	+		1 989	
VII d		++		3 507	
VII e		++		705	
IV c	4ème trim	+		142	
VII a		6		108	
VII d		+		2 303	
VII e		+		3 314	
VII f		5		140	
VII g		1		10	
VIII a		+		3 057	

région	saison	Nb d'échantillons		Nb poissons mesurés	Nb otolithes prélevés
		Nav. recherche	marché		
mulet					
VIII a	2ème trim	+		1 163	
rouget					
VII d	2ème trim	+		4	
VII e		++		21	
VII d	3ème trim	+		7	
VII e		+		7	
VII d	4ème trim	+		6	
VII e		++		43	
VIII a		++		185	
bar					
VIII a	2ème trim	+		701	
dorade grise					
VIII a	1er trim		1	161	
VII d	2ème trim	+		11	
VII e		+		416	
VIII a		+		15	
VII a	4ème trim	1		5	
VII e		+	1	1 882	
VII f		1		3	
VII g		1		7	
VIII a		+	1	989	
grondin rouge					
VII a	4ème trim	4		105	
VII e		1		45	
VII f		4		226	
VII g		3		31	
sardine					
VII a	4ème trim	2		12	
VII c		1		9	
VII f		1		3	
VII g		7	1	255	
plie					
IV	1er trim	+		976	
VII d e		+		12	
IV c	2ème trim	+		52	
VII d		++		2 595	
VII e		++		1 027	
VIII a		+		26	
IV c	3ème trim	+		250	
VII d		+		2 612	836
VII c		+		703	

région	saison	Nb d'échantillons		Nb poissons mesurés	Nb otolithes prélevés
		Nav. recherche	marché		
plie (suite)					
IV c	4ème trim	+		148	
VII d		+		886	
VII e		+		399	
VII g		6	1	165	
VIII a		+		61	
VII f		1		26	
VII a		7		187	
flétan					
IV	1er trim	+		108	
VII d	3ème trim	+		183	
limande					
IV	1er trim	+		3 577	
VII d e		+		3	
IV c	2ème trim	+		12	
VII d		+		1 957	
VII e		+		72	
VIII a		+		48	
IV c	3ème trim	+		346	
VII d		+++		5 902	
VII e		+		6	
IV c	4ème trim	+		272	
VII d		+		2 393	
VII e		+		9	
VII a		11		475	
VII f		2		16	
VII g		7		112	
VIII a		+		99	
sole					
VII d c	1er trim	+		92	
IV c	2ème trim	+		28	
VII d		++		517	
VII e		++		557	
VIII a		++		4 508	
IV c	3ème trim	+		248	
VII d		+++		1 271	230
VII e				2 239	
VII g			1	65	
IV c	4ème trim	+		202	
VII d		+		564	
VII e		++		816	
VIII a		+		97	
VII a		3		32	
VII f		3		47	
VII g		2		14	

région	saison	Nb d'échantillons		Nb poissons mesurés	Nb otolithes prélevés
		Nav. recherche	marché		
côteau					
VIII a	2ème trim	+		90	
baudroic					
VIII a	2ème trim	+		40	
VII g	3ème trim		1	67	
VII c	4ème trim	1		4	
VII g			1	152	

Centre Abidjan

Tableau récapitulatif des mensurations de poissons démersaux effectuées en 1978

Espèces	Nb échantillons	Nb individus
<u>Galeoïdes decadactylus</u>	280	19 881
<u>Pomadasys jubelini</u>	191	13 839
<u>Brachydeuterus auritus</u>	56	3 506
<u>Pseudotolithus senegalensis</u>	264	17 039
<u>Dentex angolensis</u>	39	2 790
<u>Pagellus coupei</u>	24	1 545
<u>Cynoglossus spp.</u>	61	3 528
Divers	5	297
Total	920	62 425

Centre Pointe-Noire

Espèces	Nombre d'individus mesuré				Totaux
	1er trim.	2ème trim.	3ème trim.	4ème trim.	
<u>Pseudotolithus typus</u>	983 (6)	514 (5)	251 (5)	789 (5)	2 537 (21)
<u>P. senegalensis</u>	3 724 (6)	2 190 (5)	2 052 (5)	2 200 (5)	10 166 (21)
<u>Galeoïdes decadactylus</u>	1 664 (6)	1 151 (5)	1 266 (5)	1 253 (5)	5 334 (21)
<u>Pentanemus quinquarius</u>	1 079 (6)	1 015 (5)	893 (5)	1 011 (5)	3 997 (21)
<u>Pteroscion peli</u>	1 103 (6)	930 (5)	866 (5)	977 (5)	3 876 (21)
<u>Brachydenterus auritus</u>	862 (6)	742 (5)	589 (4)	517 (4)	2 710 (19)

() : nombre d'échantillons analysé.

German Democratic Republic
(H. Schultz)

Sampling Data

Area	Season	No. of Samples			No. of fish		
		Research vessel	Commer- cial vessel	Market	measured	aged	racial invest.
<u>COD</u>							
IIb	III	7	-	-	716	229	-
<u>SAITHE</u>							
IIa	I	26	-	-	2869	913	32 ¹⁾
IVa	I	2	-	-	298	298	
	III	2	-	-	533	300	
<u>REDFISH(S. mentella)</u>							
IIa	II	-	64	-	13009	745	-
	III	-	30	-	7213	571	-
	III	1	-	-	230	93	-
IIb	III	-	8	-	2489	-	-
	III	21	-	-	4291	644	-
XIVb	III	-	9	-	113	-	-
<u>REDFISH(S. marinus)</u>							
IIa	I	3	-	-	840	193	-
<u>REDFISH(S. viviparus)</u>							
IIa	I	3	-	-	427	-	-
<u>GREENLAND HALIBUT</u>							
IIa	IV	-	-	1	511	282	-
IIb	III	13	-	-	2794	1220	-

1) parasitological analysis

Research Vessel Surveys

Area	Date	Objectives
S-Spitsbergen-Kopytov	14 - 25 Jul. 31 Jul-3 Aug.	Blue whiting-redfish survey
Bear-Island-S-Spitsbergen	26-30 Jul	Greenland halibut-redfish survey
Reykjanes	6 - 8 Jul	Redfish, experimental trawling

Federal Republic of Germany

(G. Rauck)

Continuation of the Wadden Sea sampling programme along the German coast with special reference to juvenile plaice, sole, dab, flounder, cod, haddock and whiting (joint Demersal Young Fish Survey in collaboration with the Netherlands and Belgium).

The market sampling (length distribution, otoliths) on demersal fish species from the North Sea and the North Atlantic was continued.

Sampling data on length measurements, otoliths, sex, maturity stages, etc. on board commercial and research vessels was continued as in the previous year.

Research Vessel Surveys

Area	Date	Objectives
Faroes, Shetlands	R.V. Anton Dohrn	Blue Whiting
	10.01.-26.01.1978	
Bear Island Spitzbergen	12.06.-20.07.1978	Ground fish survey
North Sea - " - - " - - " - - " - - " - - " -	R.V. Solea	Ground fish survey Sole fishing Sole fishing Ground fish survey Ground fish survey Ground fish survey Ground fish survey
	05.01.-26.01.1978	
	17.05.-30.05.1978	
	17.07.-31.07.1978	
	08.08.-19.08.1978	
	18.10.-27.10.1978	
	02.11.-15.11.1978	
	20.11.-01.12.1978	
Div. IV a, II a IV a, II a	Sampling on board commercial vessel sterntrawler "Erlangen"	Ground fish trawling
	28.12.1977-10.04.1978	
	20.04.1978-05.07.1978	
North Atl.	chartered stern trawler "Marburg"	Blue Whiting
	18.08.-22.12.1978	

Species Area	Season	Research Vessel Samples				No. of Samples	No. of Fish	Market Samples			
		No. of Samples	No. of Fish		Aged			No. of Samples	Measured	No. Of Fish	Aged
			Measured	Racial Investig- ationn							
Cod FlA	I	--	--	--	--	3 25 x)	639 4 847	369 595			
	II	--	--	--	--	1 9 x)	237 562	117 305			
	III	--	--	--	--	6 x)	332	268			
	IV	--	--	--	--	2 x)	222	65			
IIb	I	--	--	--	--	--	--	--			
	II	--	--	--	--	--	--	--			
	III	21	171	121	--	--	--	--			
	IV	--	--	--	--	3 x) 4 x)	117 158	117 74			
IVa	I	--	--	--	--	14 x)	1 863	310			
	II	28	490	470	--	-- x)	--	--			
	III	25	377	--	--	1 x)	42	42			
	IV	2	116	--	--	5 x)	87	83			
IVb	I	102	7 429	1 349	--	--	--	--			
	II	8	502	--	--	--	--	--			
	III	39	1 137	476	--	--	--	--			
	IV	43	209	--	--	--	--	--			
x) Samples taken on board commercial vessels by technician of institute											

Species Area	Season	Research Vessel Samples				No. of Samples	Market Samples	
		No. of Samples	No. of Fish		Aged	Racial Invest- ationn	No. of Fish	Aged
			Measured				Measured	
Cod XIV	I II III	-- -- --	-- -- --	-- -- --	-- -- --	2 3 2	718 1 011 571	272 123 146
Haddock IIa	I II III IV	-- -- -- --	-- -- -- --	-- -- -- --	-- -- -- --	5 x) 20 1 x) 27 x) 3 x) 5	1 973 3 590 386 4 315 232 405	553 713 145 1 760 63 114
IIb IVa	IV I II III IV	-- 29 -- 20 2	-- 6 886 -- 2 058 116	-- 1 075 -- -- --	-- -- -- -- --	x) 2 x) 8 x) 2 x) 4 x) 2	142 1 467 219 499 200	70 243 219 149 54
IVb	I III IV	18 12 17	2 300 2 155 1 491	349 224 --	-- -- --	-- -- --	-- -- --	-- -- --
Whiting IVa	I III IV	26 12 1	1 896 272 415	-- -- --	-- -- --	-- -- --	-- -- --	-- -- --
x) Samples taken on board commercial vessels by institute technician								

Species Area	Season	Research Vessel Samples				No. of Samples	Market Samples	
		No. of Samples	No. of Fish		Aged	Racial Investigation	No. of Samples	Aged
			Measured					
Whiting IVb	I	35	6 441	--	--	--	--	--
	II	1	173	--	--	--	--	--
	III	11	1 268	--	--	--	--	--
	IV	14	2 539	--	--	--	--	--
Coalfish IIa	I	--	--	--	--	--	3 538	1 692
	II	--	--	--	--	--	2 380	722
	III	--	--	--	--	--	712	712
	IV	--	--	--	--	--	901	662
IVa	I	--	--	--	--	--	857	857
	II	--	--	--	--	--	1 698	705
	III	13	421	--	--	--	1 526	637
	IV	1	435	--	--	--	516	148
IVb	I	--	--	--	--	--	525	247
	II	--	--	--	--	--	1 068	775
	III	--	--	--	--	--	393	202
	IV	--	--	--	--	--	85	85
IVa	I	--	--	--	--	--	--	--
	II	--	--	--	--	--	460	460
Norway Pout IVa	I	16	1 896	--	--	--	--	--
	III	7	980	--	--	--	--	--
	IV	1	326	--	--	--	--	--
IVb	I	30	5 322	--	--	--	--	--
	IV	3	302	--	--	--	--	--

Species Area	Season	Research Vessel Samples				No. of Samples	Market Samples		
		No. of Fish	Measured	Aged	Racial Investig- ationn		No. of Samples	Measured	Aged
Redfish IIa I and IIb ++ Vb ++ oo oo oo oo oo ++ XIV	I	--	--	--	--	8	1 622	198	
	II	--	--	--	--	5	536	440	
	III	--	--	--	--	3	155	253	
	IV	--	--	--	--	2	205	130	
	III	5	297	194	--	--	--	--	
	III	16	2 676	824	--	--	--	--	
	II	--	--	--	--	3	--	340	
	IV	--	--	--	--	1	--	131	
	I	--	--	--	--	3	627	233	
	II	--	--	--	--	6	570	411	
	III	--	--	--	--	4	837	--	
	IV	--	--	--	--	2	197	112	
	I	--	--	--	--	2	425	--	
	II	--	--	--	--	6	617	621	
Plaice IVb Sole IVb ++ S. marinus oo S. mentella	III	--	--	--	--	3	515	222	
	IV	--	--	--	--	5	741	130	
	I	--	--	--	--	5	1 269	--	
	III	--	--	--	--	6	912	264	
	IV	--	--	--	--	5	1 111	136	
	I	26	1 067	--	--	5	5 619	1 357	
	II	7	637	--	--	5	5 370	1 532	
	III	36	464	65	--	8	5 200	855	
	IV	18	687	--	--	4	3 460	949	
	I	2	23	--	--	--	--	--	
	II	71	5 756	1 260	--	14	8 990	501	
	III	31	298	158	--	11	3 142	780	
	IV	2	81	--	--	18	3 298	1 158	

Species Area	Season	Research Vessel Samples						Market Samples		
		No. of Samples	No. of Fish		Aged	Racial Investig- ationn		No. of Samples	Measured	Aged
			Measured							
Turbot IVb	I	8	31	--	--	--	--	--		
	II	60	152	103	--	5	1 171	1 039		
	III	3	3	--	--	4	555	550		
	IV	--	--	--	--	1	403	270		

Iceland
(J. Magnússon)

The research work on demersal species of fish was carried out in Iceland along the same lines as in previous years, both on landed demersal fish and on research vessel catches. The collection of data on landed demersal fish was intensified particularly on redfish, Greenland halibut and ocean catfish.

The three branches of the Marine Research Institute were operated the whole year with the same tasks as in previous years. The visiting fishery inspectors collected a considerable amount of length measurement data from demersal fish, particularly cod.

The research vessel "Bjarni Samundsson" was engaged in work on demersal species with "Hafþór" also taking part in the first months of the year.

The research programme on the distribution of mature cod just before and during the spawning period was continued, as well as the research programmes on the immature population of cod and on the behaviour of cod in the area NW of Iceland.

The number of fish sampled is shown in the following tables.

Sampling Data

PLAICE

Area	Season	No. of samples		No. of fish		
		Research vessel	Market samples	Measured	Aged	Tagged
Va	Jan.- Mar.	3		1054	404	1500
	Apr.-Jun.	2			302	
	Jul.-Sep.	2	6	1052	1500	501
	Oct.-Dec.		2		400	
Total:		7	8	2106	2606	2001

SILVER SMELT

Area	Season	No. of samples		No. of fish	
		Research vessels	Market samples	Measured	Aged
Va	Jan.-Mar.	5		33	
"	Apr.- Jun.	32		1654	300
"	Jul.-Sep.	67		2393	187
Sub. total:		104		4080	487
XIV	Jan.-Mar.	4		4	
Grand total:		108		4084	487

Sampling Data

Lepidion eques

Area	Season	No. of samples		No. of fish	
		Research vessels	Market samples	Measured	Aged
Va.	Jan.-Mar.	11		54	
"	Apr.-Jun.	12		322	
"	Jul.-Sep.	13		505	
Total		36		881	

LING

Area	Season	No. of samples		No. of fish	
		Research vessels	Market samples	Measured	Aged
Va	Apr.-Jun	9		20	
"	Jul.-Sep	6		11	
"	Oct.-Dec.	3		4	
Total		18		35	

BLUE LING

Area	Season	No. of samples		No. of fish	
		Research vessels	Market samples	Measured	Aged
Va	Jan.-Mar	13		71	23
"	Apr.-Jun	28		297	162
"	Jul.-Sep	78		912	354
"	Oct.-Dec.	8		42	
"	"		1	214	
Sub. total:		127	1	1536	539
XIV	Jan.-Mar	6		6	20
Grand total		133	1	1542	559

Sampling Data

TUSK

Area	Season	No. of samples		No. of fish	
		Research vessels	Market samples	Measured	Aged
Va	Jan.-Mar.	5		11	
"	Apr.-Jun.	20		194	
"	Jul.-Sep.	46		226	
"	Oct.-Dec.	2		2	
Sub total		73		433	
XIV	Jan.-Mar.	7		22	
Grand total		80		455	

WHITING

Area	Season	No. of samples		No. of fish	
		Research vessels	Market samples	Measured	Aged
Va	Jan.-Mar.	3		32	
"	Apr.-Jun.	6		243	
"	Oct.-Dec.	5		57	
Total		14		332	

ROUNDNOSE GRENADIER

Area	Season	No. of samples	No. of fish	
Va	Jan.-Mar.	20	1594	686
"	Apr.-Jun.	9	406	282
"	Jul.-Sep.	13	596	-
Total		42	2596	968

Sampling Data

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NORWAY POUT

Area	Season	No. of samples		No. of fish		
		Research vessels	Market samples	Measured	Aged	Tagged
Va	Jan.-Mar.	-	-	-	-	-
	Apr.-Jun.	3	0	389	55	0
	Jul.-Sep.	1	0	676	275	0
	Oct.-Dec.	4	0	708	165	0
		8	0	1773	495	0

HALIBUT

Area	Season	No. of samples		No. of fish		
		Research vessels	Market samples	Measured	Aged	Tagged
Va	Jan.-Mar.	2	0	162	132	0
	Apr.-Jun.	5	0	195	141	14
	Jul.-Sep.	2	0	6	0	0
	Oct.-Dec.	1	0	328	69	259
		10	0	691	342	273

GREENLAND HALIBUT

Area	Season	No. of samples		No. of fish		
		Research vessels	Market samples	Measured	Aged	Tagged
Va	Jan.-Mar.	-	-	-	-	-
	Apr.-Jun.	7	11	3690	1404	
	July-Sept.	14	3	964	900	1231
	Oct.-Dec.			390		
XIV		21	14	5044	2304	1231
	Jan.-Mar.	5		173	200	
	Apr.-Jun.	4		426	400	
Sub. total:		9		599	600	
Total:		30	14	5643	2904	1231

Sampling Data

ROUGHHEAD GRENADIER

Area	Season	No. of samples		No. of fish	
		Research vessels	Market samples	Measured	Aged
Va	Jan.-Mar.	11		31	
	Jul.-Sep.	8		11	
		19		42	
XIV	Jan.-Mar.	12		377	219

CATFISH (Anarrhicas lupus)

Area	Season	No. of samples		No. of fish		
		Research vessels	Market samples	Measured	Aged	Tagged
Va	Jan.-Mar.	2	1	185	107	72
	Apr.-Jun.	6	1	1679	840	331
	Jul.-Sep.	2	0	381	350	22
	Oct.-Dec.	2	0	3063	912	1055
		12	2	5308	2209	1480

CATFISH (A. minor)

Area	Season	No. of samples		No. of fish		
		Research vessels	Market samples	Measured	Aged	Tagged
	Jan.-Mar.	2	0	7		75
	Apr.-Jun.	4	0	17		
	Jul.-Sep.	2	0	20		
	Oct.-Dec.	3	0	102	8	63
		11	0	146	8	138

Sampling Data

REDFISH

Area	Season	No. of samples		No. of fish	
		Research vessels	Market samples	Measured	Aged
		<u>S. marinus</u>			
Va	Jan.-Mar.	70		3179	100
"	"		4	698	
"	Apr.-Jun.	36		2202	
"	"		13	2289	100
"	Jul.-Sep.	119		8016	
"	"		17	2205	600
"	Oct.-Dec.	37		2606	
"	"		12	1409	199
XIV	Jan.-Mar.	10		204	
Sub. total:		272	46	22808	999
		<u>S. mantella</u>			
Va	Jan.-Mar.	8		274	
"	"		1	61	
"	Apr.-Jun.	40		2465	
"	"		8	1054	
"	Jul.-Sep.	79		8378	
"	"		2	3	
"	Oct.-Dec.		4	344	
XIV	Jan.-Mar.	10		334	
Sub. total:		137	15	12913	
		<u>S. viviparus</u>			
Va	Jan.-Mar.	2		60	
"	Apr.-Jun.	8		926	100
"	Jul.-Sep.	41		2354	
"	Okt.-Dec.	1		34	
XIV	Jan.-	2		8	
Sub. total:		54		3382	100
Grand total:		463	61	39103	1099

Sampling Data

SATHE

Area	Season	No. of samples		No. of fish		
		Research vessels	Market samples	Measured	Aged	Tagged
Va	Jan.-Mar.	7		303	-	-
"	"		7	1059	398	-
"	Apr.-Jun.	30		2404	497	-
"	"		18	1934	303	-
"	July-Sep.	23		2000	438	-
"	"		13	1203	200	-
"	Oct.-Dec.	20		2421	200	-
"	"		9	1215	100	-
Total		80	47	12539	2136	-

COD

Area	Season	No. of samples		No. of fish.		
		Research vessels	Market samples	Measured	Aged	Tagged
Va	Jan.-Mar.	190		25720	1738	1467
"	"		38	5981	1278	-
"	Apr.-Jun.	245		42865	1899	122
"	"		61	8349	1789	-
"	July-Sep.	277		50044	1697	323
"	"		58	9149	674	-
"	Oct.-Dec.	178		21669	1247	99
"	"		28	3955	502	-
Total		890	185	167732	10824	2011
XIV	Jan-Mar.	4	-	40	-	-

Sampling Data

HADDOCK

Area	Season	No. of samples		No. of fish		
		Research vessels	Market samples	Measured	Aged	Tagged
Va	Jan.-Mar.	53		6897	402	-
"	"		16	3150	580	-
"	Apr.-Jun.	71		9245	709	-
"	"		26	3413	696	-
"	July-Sep.	52		6018	303	-
"	"		15	2185	100	-
"	Oct.-Dec.	71		7944	304	-
"	"		6	500	100	-
Total		247	63	39352	3194	-

Ireland

(J.P. Hillis)

Cod, haddock, whiting and plaice taken in commercial catches were sampled at the port in Divisions VIa, VIIa, VIIb,c and VIIg-k (excluding haddock in VIIa) and sole in VIIg-k only. Small scale examination of discards at Killybegs in Division VIa was continued.

Plaice

Beam trawl surveys for juveniles were carried out during 2-11 May and 26 September - 5 October covering 43 stations each in inshore waters off the east coast between latitudes 52°15'N and 54°00'N in Division VIIa, yielding 376 and 682 juvenile plaice respectively.

SAMPLING DATA

Species	Division, Port	Season	No. of samples (all market)	No. of fish	
				Measured	Otoliths taken
COD	VIa Killybegs	1	4	215	76
		2	16	329	314
		3	9	222	95
		4	4	433	126
	Greencastle	1	2	229	81
		2	2	314	129
		Total	37	1 742	821
	VIIa Howth	1	5	514	285
		2	5	517	194
		3	3	406	129
		4	2	310	207
	Kilmore Quay	1	1	57	56
		2	3	293	115
		Total	19	2 097	986
	VIIb,c Galway	1	4	313	208
		2	9	123	126
		4	12	255	116
		Total	25	691	450
	VIIg-k Castletownbere and Dingle	1	6	254	47
		2	9	56	48
		3	2	84	78
		4	2	124	-
		Total	19	518	173
	OVERALL TOTAL		100	5 048	2 430
HADDOCK	VIa Killybegs	1	2	61	20
		2	6	736	237
		3	8	641	121
		4	2	248	63
	Greencastle	2	1	204	90
		Total	19	1 890	531
	VIIb,c Galway	2	2	31	31
		4	2	127	39
		Total	4	158	70
	VIIg-k Castletownbere and Dingle	1	4	105	33
		2	3	35	33
		3	3	55	55
		4	2	181	38
		Total	12	376	159
	OVERALL TOTAL		35	2 424	760

Species	Division, Port	Season	No. of samples (all market)	No. of fish	
				Measured	Otoliths taken
WHITING	VIa Killybegs	1	5	1 143	133
		2	4	868	251
		3	4	1 447	111
		4	4	1 044	65
	Greencastle	2	1	496	96
		Total	18	4 998	656
	VIIa Howth	1	3	505	172
		2	3	791	225
		3	2	583	136
		4	3	983	157
		Total	11	2 862	690
	VIIb,c Galway	1	4	512	145
		3	3	1 102	112
		Total	7	1 614	157
	VIIg-k Castletownbere Dingle and Unionhall	1	1	171	39
		2	3	764	159
		3	6	1 075	314
		4	2	472	48
		Total	12	2 482	560
	OVERALL	TOTAL	48	11 956	2 063

Species	Division, Port	Season	No. of samples (all market)	No. of fish			
				Measured		Otoliths taken	
				M	F	M	F
PLAICE	VIa Killybegs	1	2	224	184	31	15
		2	7	547	477	172	172
		3	4	493	426	97	105
		4	5	983	601	126	106
	Greencastle	2	2	356	334	77	122
		Total	20	2247	2022	503	520
	VIIa Howth	1	1	302	115	66	58
		2	3	54	259	35	74
		3	2	145	203	69	93
		4	1	91	132	49	74
	Kilmore Quay	1	1	299	79	75	76
		2	3	207	353	67	119
		Total	11	828	1141	361	495
	VIIb,c Galway	1	1	234	173	68	82
		2	1	160	242	81	112
		3	7	665	553	123	152
		4	2	325	307	66	81
		Total	11	1384	1275	338	437
	VIIg-k Castletownbere etc.	1	2	22	73	-	67
		2	5	397	498	54	93
		3	5	390	477	153	209
		4	2	134	123	-	-
		Total	14	943	1171	207	369
	OVERALL	TOTAL	54	5402	5609	1409	1821
SOLE	VIIg-k Castletownbere Dingle and Unionhall	2	3	116	184	27	48
		3	1	53	51	18	21
		TOTAL	4	169	235	45	69

Netherlands

(J.F.de Veen)

Work at sea.

In 1976 the RV "Willem Beukelsz" was taken out of service. The "Koningin Juliana", designed to be used for research and instruction for fishery schools, did not fulfil the expectations and in 1978 a number of commercial ships have been chartered to act as research ships. The RV "Tridens" made 16 cruises in the area of the Council of which 10 were mainly devoted to work within the scope of the Demersal Fish Committee. The commercial beamtrawler "KW 34" carried out 5 trips of which 1 was for demersal purposes. The corresponding figures for the cutter "WR 17" was 4 and 4 and for the sterntrawler "VL 115" 1 and 1. The RV "Stern" made 30 trips of which 26 were devoted to demersal topics and the RV "Schollevaar" 10 trips of which 10 were for demersal aims. The RV "Stern", RV "Schollevaar", RV "Tridens" and the cutter "WR 17" made two joint cruises, one in April-May and one in September-October to analyse the stocks of juvenile sole, plaice, dab, flounder, gadoids, brown shrimps and other organisms in the nurseries of Belgium, Holland, Federal Republic of Germany and part of Denmark in cooperation with Belgian and German research vessels. The cutter "KW 34" made one cruise in May to the eastern part of the Irish Sea to analyse the stocks of juvenile fish there.

Work on fish.

Plaice

The stock analysis by means of market sampling from different sub-stocks in the North Sea was continued with the emphasis on the first quarter in the spawning season. Analysis of the catches of young fish cruises (April-May and September-October) in the southern and central North Sea continental coasts showed that the 1977 yearclass was somewhat below average but the 1978 year

class was very good

In addition to the prerecruit-surveys for O- and I-group flatfish a special programme for estimating the numbers of O- and I-group plaice and brown shrimp, and of benthos on the tidal flats has been carried out throughout the year.

Sole

The stock analysis by means of market sampling from different localities in the North Sea, Irish Sea and the Gulf of Biscay was continued.

One cruise was devoted to the Irish Sea for census purposes. Analysis of the catches of pre-recruit sole in Belgian, Dutch, German and Danish coastal areas showed that the 1977 yearclass was poor and of the order of the poor 1974 yearclass. The first impression is that the 1978 one is good and of the order of the good 1976 yearclass.

Dab

No stock analysis through market sampling is possible because of the variable and high discarding rate at sea. During the juvenile fish cruises in spring and autumn the age structure of the dab population in the nurseries and at sea has been analysed.

Cod

The analysis of cod stocks by means of market sampling was continued.

Saithe

The analysis of saithe stocks by means of market sampling was continued.

Cod, Haddock and Whiting

The RV "Tridens" participated in the ICES Young Fish Surveys in February for estimating abundance of I-year old gadoids and in summer for estimating O-group abundance of gadoids during the pelagic phase. The sterntrawler "VL 115" made an additional survey for estimating the O-group strength.

Discards

Discarding at sea of flatfish and gadoid species has been studied throughout the year in various areas in the North Sea on board of the following commercial ships: HA 13, HA 35, HD 4, HD 27, GO 4, GO 25, KW 74, KW 149, KW 152, TX 34, UK 2, UK 52, UK 90, UK 193, UQ 1, VD 19, VD 73, WR 123, WR 136, WR 226, IJM 154.

1978 Sampling Data for PLAICE

Area	Season	No. of samples for age determination only		Number of Fish	
		Research Vessel	Market	Measured and aged	Racial investigation
IIIa	2nd quarter	1	1	215	215
	4th quarter	1	-	137	137
IVb	1st quarter	-	81	5 670	5 670
	2nd quarter	10	21	2 272	2 272
	3rd quarter	-	12	840	840
	4th quarter	12	6	1 195	1 195
IVc	1st quarter	-	16	1 120	1 120
	2nd quarter	8	6	857	857
	3rd quarter	7	7	490	490
	4th quarter	10	9	1 189	1 189
VIIa	1st quarter	-	2	140	140
	2nd quarter	4	-	611	611
	3rd quarter	-	-	-	-
	4th quarter	-	-	-	-
Dutch Wadden-sea	2nd quarter	6	-	295	295
	4th quarter	7	-	425	425
Zeeland Estuary	2nd quarter	6	-	89	89
	4th quarter	2	-	166	166
Total annually		67	161	15 711	15 711

1978 Sampling Data for SOLE

Area	Season	No. of samples for age determination only		Number of Fish	
		Research Vessel	Market	Measured and aged	Racial investigation
IIIIa	2nd quarter	1	-	2	2
	4th quarter	1	-	5	5
IVb	1st quarter	-	16	800	800
	2nd quarter	8	64	3 334	3 334
	3rd quarter	-	11	550	550
	4th quarter	9	15	1 076	1 076
IVc	1st quarter	-	4	200	200
	2nd quarter	8	35	2 031	2 031
	3rd quarter	-	6	300	300
	4th quarter	8	7	674	647
VIIa	1st quarter	-	3	150	150
	2nd quarter	4	11	983	983
	3rd quarter	-	-	-	-
	4th quarter	-	-	-	-
VIII Gulf of Biscay	2nd quarter	-	-	-	-
	2nd quarter	6	-	66	66
Dutch Waddensea	4th quarter	7	-	106	106
	2nd quarter	5	-	65	65
Zeeland Estuary	4th quarter	2	-	117	117
Total annually		59	172	10 459	10 459

1978 Sampling Data for DAB

Area	Season	No. of samples for age determination only		Number of Fish		
		Research Vessel	Market	Measured and aged	Racial investigation	
IIIIa	2nd quarter	1	-	75	75	
	4th quarter	1	-	62	62	
IVb	1st quarter	-	-	-	-	
	2nd quarter	9	-	643	643	
	3rd quarter	-	-	-	-	
	4th quarter	14	-	742	742	
IVc	1st quarter	-	-	-	-	
	2nd quarter	8	-	466	466	
	3rd quarter	-	-	-	-	
	4th quarter	8	-	435	435	
VIIa	1st quarter	-	-	-	-	
	2nd quarter	4	-	359	359	
	3rd quarter	-	-	-	-	
	4th quarter	-	-	-	-	
VIII Gulf of Biscay	2nd quarter	-	-	-	-	
	2nd quarter	6	-	136	136	
	4th quarter	7	-	214	214	
	2nd quarter	?	-	?	?	
Zeeland Estuary	4th quarter	2	-	166	166	
Total annually		60	-	3 298	3 298	

1978 Sampling Data for COD

Area	Season	No. of samples for age determination only		Number of Fish		
		Research Vessel	Market	Measured ¹⁾	Aged ²⁾	Racial investigation
IV	1st quarter	21	8	3 165	2 038	-
	2nd quarter	-	10	2 804	528	-
	3rd quarter	3	10	2 141	707	-
	4th quarter	-	8	2 588	395	-
Total annually		24	36	10 698	3 668	-
1978 Sampling Data for <u>HADDOCK</u>						
IV	1st quarter	13	6	1 173	868	-
	2nd quarter	-	4	834	190	-
	3rd quarter	3	8	883	605	-
	4th quarter	-	4	751	176	-
Total annually		16	22	3 641	1 839	-
1978 Sampling Data for <u>WHITING</u>						
IV	1st quarter	17	6	3 118	1 583	-
	2nd quarter	-	6	2 562	299	-
	3rd quarter	3	14	2 572	562	-
	4th quarter	-	7	3 959	397	-
Total annually		20	33	12 211	2 841	-
1978 Sampling Data for <u>SAITHE</u>						
IV	1st quarter	-	11	515	1 741	-
	2nd quarter	-	3	319	140	-
	3rd quarter	2	4	179	255	-
	4th quarter	-	4	520	200	-
Total annually		2	22	1 533	2 331	-

Norway
(C.J. Rørvik)

Sub-areas I and II

The research activities at sea were nearly the same in 1978 as in the last years. The distribution of young cod and haddock were investigated during a combined acoustic and trawl survey in the Barents Sea in February - March. In February - March the concentrations of mature Arcto-Norwegian cod were charted in Lofoten. The investigations on larvae and post-larvae of cod were continued in April with a survey in Lofoten. In April - May the resources of redfish, Greenland halibut and blue whiting in the Vesterålen - Bear Island area were studied with one research vessel. In August - September the annual international 0-group fish survey was carried out in the Barents Sea. In October - November the distribution and abundance of cod, haddock, redfish and blue whiting were investigated in the Bear Island - West Spitsbergen area.

Tagging experiments of the major roundfish species were continued. In March - April mature cod were tagged in Lofoten. In June young saithe were tagged in the southern part of Division IIa. In August - September cod and haddock were tagged in the coastal waters of northern Norway.

The abundance of 0-group saithe in the littoral zone was studied at selected localities along the Norwegian coast in September - October.

Market sampling of Recommendation 4 species was continued. The sampling of Recommendation 2 fisheries was continued.

Sub-area IV

The sampling of Recommendation 2 fisheries in Division IVa was continued.

As part of international surveys the distribution and abundance of I- and II-group gadoids were studied in February - March, and 0-group gadoids and young sandeel in June - July. In July - August two research vessels did a combined acoustic and trawl survey, primarily to estimate the absolute abundance of 0-group Norway pout and haddock. The influx of 0-group blue whiting to the Northern North Sea was investigated in November - December. Saithe were tagged in June along the Norwegian coast.

SPECIES AREA	Season	RESEARCH VESSEL				MARKET				
		Aged		Measured		Tagged	Aged		Measured	
		No.of samples	No.of fish	No.of samples	No.of fish		No.of samples	No.of fish	No.of samples	No.of fish
Cod										
I	1	25	2061	54	2690					
	2	1	74	-	-		23	2273	55	14296
	3	4	338	35	1289	600			5	378
	4	1	42				9	808	18	3709
II A	1	4	341	16	724		11	926	14	4291
	2	6	542	24	1646	2500			20	2457
	3	10	620	46	1315	350			6	405
	4	6	547	23	292				29	3314
II B	2			3	9					
	3			25	1476					
	4	9	493	21	407				6	392
IV A	1	1	29	15	56				46	215
	2			11	81				85	234
	3	1	52						29	34
	4								11	14
IV B	1	1	51	16	64					

SPECIES AREA	Season	RESEARCH VESSEL				MARKET				
		Aged		Measured		Tagged	Aged		Measured	
		No.of samples	No.of fish	No.of samples	No.of fish		No.of samples	No.of fish	No.of samples	No.of fish
<u>Haddock</u>										
I	1	11	751	33	2203	200	8	529	16	1394
	2			2	97					
	3	3	224	25	565					
	4			1	115					
II A	1	1	49	8	701	325			5	28
	2	2	240	12	572				8	227
	3	5	180	35	591				2	10
	4			11	207				11	2361
II B	3			24	312					193
	4	2	41	9	91					
IV A	1	9	443	24	2331				59	1220
	2			21	475				91	673
	3								60	380
	4			15	2184				36	392
IV B	1			2	2					

SPECIES AREA	Season	RESEARCH VESSEL				MARKET				
		Aged		Measured		Tagged	Aged		Measured	
		No.of samples	No.of fish	No.of samples	No.of fish		No.of samples	No.of fish	No.of samples	No.of fish
<u>Saithe</u>										
I	1			1	1					
	2						3	352	7	1334
	3	2	190	2	1079	1000			9	823
II A	1						10	947	13	2718
	2	3	309	7	849	1800	1	95	13	1989
	3	2	199	10	1125	1000	3	346	29	4790
	4	1	100	1	3				23	2828
II B	3			1	1					
IV A	1			5	65				28	53
	2	3	300	15	1676	1800			49	922
	3								67	564
	4	2	200	2	70	1500			39	2337
<u>Greenland Halibut</u>										
I	1			4	12					
	2						4	368		
	3			1	2					
II A	2			2	33					
	3			1	1					
	4						7	308	1	187
II B	2				45					
	3			38	843					
	4	11	115	4	248		1	490		

[illegible]

SPECIES AREA	Season	RESEARCH VESSEL				MARKET				
		Aged		Measured		Tagged	Aged		Measured	
		No.of samples	No.of fish	No.of samples	No.of fish		No.of samples	No.of fish	No.of samples	No.of fish
<u>Whiting</u>										
I	1			1	1					
II A	1			1	1					
	2			3	16					
	4			4	11					
IV A	1	5	459	19	771				73	1081
	2			4	10				65	974
	3								13	71
	4			6	490				35	145
IV B	1	2	51	24	1812					
	3			1	48					
<u>Norway pout</u>										
I	1			8	167					
	2			1	60					
	3			1	1					
	4			1	70					
II A	1			4	133				1	55
	2			12	320					
	3			2	106					
	4			5	201					
II B	4			1	2					
IV A	1	8	222	20	2306		3	100	45	4533
	2			20	932		2	75	41	3849
	3						1	25	26	2504
	4	3	159	15	2160		2	64	16	1641

SPECIES AREA	Season	RESEARCH VESSEL				MARKET				
		Aged		Measured		Tagged	Aged		Measured	
		No.of samples	No.of fish	No.of samples	No.of fish		No.of samples	No.of fish	No.of samples	No.of fish
Blue whiting										
I	1			3	12					
	3			2	9					
II A	1			1	1				6	354
	2			11	115				5	254
	3			11	77				5	145
	4			1	1				1	50
II B	2			1	44					
	3			5	156					
	4			21	1253					
IV A	1			2	146				22	1272
	2								24	1878
	3								16	1144
	4			13	1889				8	800
IV B	3								1	100
Silver smelt										
II A	1								5	257
	2			6	153				5	250
	3								2	100
	4								1	50
IV A	1			5	53				13	360
	2			1	1				19	398
	3								6	65
	4			6	509				5	73

SPECIES AREA	Season	RESEARCH VESSEL				MARKET				
		Aged		Measured		Tagged	Aged		Measured	
		No.of samples	No.of fish	No.of samples	No.of fish		No.of samples	No.of fish	No.of samples	No.of fish
<u>Sandeel</u>										
I	3			19	444					
II A	3			1	4					
II B	3			2	2					
IV A	2			22	815					
	4								2	200
IV B	2								6	600
	3			1	18				1	100
<u>Long rough dab</u>										
I	1			42	2029					
	2			2	100					
	3			17	408					
	4			2	41					
II A	1			2	110					
	2			10	542					
	3			10	84					
	4			2	212					

SPECIES AREA	Season	RESEARCH VESSEL				MARKET				
		Aged		Measured		Tagged	Aged		Measured	
		No.of samples	No.of fish	No.of samples	No.of fish		No.of samples	No.of fish	No.of samples	No.of fish
Redfish	II B	2		2	118					
	3			29	602					
	4			29	2989					
	IV A	1		21	692				1	43
	2			1	1					
	4			2	110					
	IV B	1		7	140					
	I	1		43	1899					
	3			26	1441					
	4			1	54					
II A	1			8	513					
	2			27	1632					
	3			54	4760					
	4			7	265				1	79
II B	2			3	186					
	3			33	1961					
	4			27	2434					
IV A	4			1	86				1	7

Poland

(W. Cieglewicz + A. Paciorkowski)

Sampling Data for 1978

Species and Area	Season	No. of Sampling		No. of Fish	
		Research Vessel	Market	Measured	Aged
<u>COD</u> IIa	2	-	4	3 204	401
IIa	3	-	3	1 397	302
IIb	2	-	3	2 212	300
<u>GREENLAND</u> IIa	2	-	2	1 943	100
<u>HALIBUT</u> IIb	2	-	6	5 850	400

Portugal

(M. Lima Dias)

Sampling Data 1978 on Portuguese coast (Fishing Ports)

HAKE (Merluccius merluccius L.)

Area	Season	Number of Samples	No. of Fish Measured
IX	I	50	4 083
	II	38	2 256
	III	36	2 231
	IV	37	1 646
Total		161	10 216

Spain

(R. Robles)

1. Travaux réalisés par l'Institut espagnol d'Océanographie (IEO)

a) Activités en mer

Le Laboratoire des Iles des Canaries (Ténérife) a poursuivi ses travaux sur les chalutiers de la flottille commerciale pour étudier les écarts des poissons dans la pêcherie du Ouest Afrique ($21^{\circ}30'$ à $26^{\circ}00'$ N), en faisant deux campagnes dans lesquelles on avait réalisé des mensurations sur différentes espèces (Merluccius senegalensis, Trachurus trachurus, Boops boops, Pagellus coupei, Sepia officinalis, S. orbingyana, Loligo vulgaris et Octopus vulgaris).

Les laboratoires de la côte nord-ouest de l'Espagne ont effectué quelques sorties à bord des chalutiers pêchant sur le plateau continental du nord-ouest espagnol.

b) Travaux à terre

i) Merlu

On a eu quelques difficultés avec la récolte des données sur la composition des captures et l'effort selon les différentes zones de pêche, mais malgré tout, on a obtenu des données approximatives.

En relation avec le stock du plateau continental du nord-ouest de l'Espagne on a publié un travail sur "La pêcherie demersale galicienne; stratégies de pêche pour sa régulation rationnelle en base au merlu", qui étudie les interrelations entre les différents engins de pêche.

ii) Autres espèces

Le merlan bleu (Micromesistius poutassou) le cinchard (Trachurus trachurus) et les cardines (Lepidorhombus spp.) ont également été étudiés dans un certain degré, surtout le merlan bleu, étant donné qu'elles sont des espèces les plus abondantes dans la côte galicienne, apart du merlu.

2. Travaux réalisés par d'autres organismes

L'Institut pour les Recherches sur les Pêcheries a complété ses études sur la maturité sexuelle, la ponte et la fécondité des cardines.

On a continué les observations concernant la nourriture et la croissance de quelques espèces de Triglidés de la côte galicienne. Egalement, on a effectué des observations sur la biométrie, sexe, maturité sexuelle, nourriture et croissance de la dorade (Pagellus bogaravo), maqueraux (Scomber scombrus) et la merlu (Merluccius merluccius) du plateau continental galicien.

En collaboration avec l'Institut espagnol d'Océanographie on a déroulé divers travaux, dans la mer et à terre, tenant pour but une étude plus complète concernant les ressources du merlu dans les eaux du nord-ouest espagnol.

Pendant l'année 1978 on a effectué une étude statistique des relations et dépendances entre différentes espèces de poissons et entre eux-mêmes, et quelques variables physico-chimiques du milieu dans la pêcherie de la Galicie.

Avec les données qui ont été obtenues au cours des campagnes des années précédentes on a conclu le travail sur la distribution et abondance des espèces démersaux de la pêche galicienne.

3. Travaux envisagés pour 1979

Revision des données sur la pêche galicienne et mise en contact avec les collègues portugais pour une étude conjointe des stocks des Divisions VIIIc ouest et IXa.

Réalisation, si possible, de trois campagnes, dont l'un sera consacré aux travaux de sélectivité, ayant pour but également l'étude multi-disciplinaire du plateau continental de la Galicie.

4. Echantillonnage des espèces plus importantes

Région	Saison	No. d'échantillons		No. de poissons mesuré	
		Bateau commercial	Marché	Bateau commercial	Marché
<u>MERLU</u> VIIg,h, j,k	1er trim.	-	1	-	647
	2ème trim.	-	4	-	1 051
VIIIa,b	1er trim.	-	1	-	381
	2ème trim.	-	3	-	1 959
	3ème trim.	-	5	-	1 471
	4ème trim.	-	4	-	554
VIIIc + IXa	1er trim.	2	30	618	8 274
	2ème trim.	2	31	207	4 009
	3ème trim.	2	36	154	3 014
	4ème trim.	3	28	1 353	3 361

Région	Trimestre	Echantillons		No. de Poissons mesuré
		Mer	Terre	
<u>Sepia officinalis</u>				
23°00'-26°00'	I	23	-	-
	III	9	-	191
<u>Pagellus coupi</u>				
23°00'-26°00'	I	29	-	331
	III	20	-	225
<u>Merluccius senegalensis</u>				
23°00'-26°00'	III	6	-	240
<u>Trachurus trachurus</u>				
23°00'-26°00'	I	23	-	223
	III	25	-	504
<u>Boops boops</u>				
23°00'-26°00'	I	20	-	137
	III	2	-	3

Région	Trimestre	Echantillons		No. de Poissons mesuré
		Mer	Terre	
<u>Loligo vulgaris</u> 23°00'-26°00'	I III	3 8	- -	4 260
<u>Octopus vulgaris</u> 23°00'-26°00'	I III	39 63	- -	676 1 460
<u>Sepia orbingyana</u> 23°00'-26°00'	III	8	-	114

Sweden

(O. Hagström + B. Sjöstrand)

SAMPLING DATA WHITING 1978

AREA	SEASON	TYPE OF FISH	NO OF SAMPLE		NO OF FISH MEASURED	AGED
			RESEARCH VESSEL	MARKET		
KATTEGATT	II		9		1 505	239
SKAGERRAK	II		11		1 698	284
NORTH SEA	II		3		464	198

SAMPLING DATA HADDOCK 1978

AREA	SEASON	TYPE OF FISH	NO OF SAMPLE		NO OF FISH MEASURED	AGED
			RESEARCH VESSEL	MARKET		
KATTEGATT	II		9		63	55
SKAGERRAK	II		11		297	415
NORTH SEA	II		3		367	173

SAMPLING DATA PLAICE 1978

AREA	SEASON	TYPE OF FISH	NO OF SAMPLE		NO OF FISH MEASURED	AGED
			RESEARCH VESSEL	MARKET		
KATTEGATT	I			1	93	-
"	III			2	847	235
"	IV			1	272	109
"	V			2	316	73
"	VI			2	422	87

SAMPLING DATA COD 1978

AREA	SEASON	TYPE OF FISH	NO OF SAMPLE		NO OF FISH MEASURED	AGED
			RESEARCH VESSEL	MARKET		
KATTEGATT	I			4	2 008	197
KATTEGATT	II	Im.	9		1 827	501
SKAGERRAK	II	Im.	11		224	275
NORTH SEA	II	Im.	3		303	197
KATTEGATT	III			4	2 007	425
KATTEGATT	IV			4	1 685	283
KATTEGATT	V			3	847	100
KATTEGATT	VI			4	1 351	214

United Kingdom

1. Sampling

1. England and Wales

(A.C. Burd)

COD

Area	Research vessels	No. of samples	No. fish measured	Aged
Arctic I, IIa, IIb		109	17 303	1 361
Faroe Vb + b ₂		16	1 940	384
North Sea IVa+b+c, offshore	+	915	131 088	7 450
W. Scotland VIa	+	74	11 870	1 104
Rockall VIb		15	1 691	252
Irish Sea VIIa, offshore	+	110	15 229	2 181
Bristol Channel VIIIf	+	1	172	62
SE Ireland VIIIg	+	3	375	67
E. English Channel VIIId	+	58	4 295	110
W. " " VIIIf		13	682	-
Newfoundland		-	-	37
Labrador		-	-	68
<u>Freezers</u>				
Arctic		27	12 793	
Newfoundland		2	603	
North Sea		1	40	

	Samples	Fish measured	Otoliths
North Sea, all ports offshore	445	66 247	3 979
NE coast, inshore	403	54 838	2 875
East coast, inshore	67	10 003	596
	915	131 088	7 450
Irish Sea, offshore	25	4 329	546
" " inshore	85	10 900	1 635
	110	15 229	2 181

SAITHE

Area	Research vessels	No. of samples	No. fish measured	Aged
Arctic I, IIa, IIb		24	2 668	390
Faroe Vb + b ₂		12	950	204
North Sea IVa +b+c, offshore		64	6 596	860
W. Scotland VIa		71	7 584	638
Rockall VIb		1	92	-
<u>No freezers</u>				

PLAICE

Area	Research vessels	No. of samples	No. fish measured	Aged
North Sea IVa+b+c, offshore.	+	331	57 389	4 047
Irish Sea VIIa, offshore	+	131	24 527	1 839
Bristol Channel VIIIf	+	14	3 257	232
S.E. Ireland VIIg	+	8	1 537	63
W. Scotland VIa		1	288	-
E. English Channel VIIId	+	67	5 264	452
W. " " VIIe		145	13 865	1 706

	Samples	Fish measured	Otoliths
North Sea, offshore	294	53 536	3 816
East coast, inshore	37	3 853	231
	331	57 389	4 047
Irish Sea, offshore	21	4 794	402
" " inshore	110	19 733	1 437
	131	24 527	1 839

HADDOCK

Area	Research vessels	No. of samples	No. fish measured	Aged
Arctic I, IIa, IIb		81	12 670	901
Faroe Vb + b ₂		13	1 703	-
North Sea IVa+b+c, offshore*		475	63 341	2 867
W. Scotland VIa	+	80	9 413	940
Irish Sea VIIa, offshore	+	12	1 018	60
Bristol Channel VIIIf	+	2	118	-
S.E. Ireland VIIg	+	1	121	-
Rockall VIb	+	20	2 623	177

Freezers

Arctic	1	52	-
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	Samples	Fish measured	Otoliths
North Sea, all ports offshore	234	36 787	1 812
NE coast, inshore	240	26 449	1 042
East coast, inshore	1	105	13
	475	63 341	2 867
Irish Sea, offshore	1	50	22
" " inshore	11	968	38
	12	11 018	60

SOLE

Area	Research vessels	No. of samples	No. fish measured	Aged
North Sea IVa+b+c, offshore	+	55	7 697	646
Irish Sea VIIa, offshore	+	78	14 061	478
Bristol Channel VIIIf	+	4	923	54
S.E. Ireland VIIg	+	5	1 146	54
E. English Channel VIId	+	102	10 426	406
W. " " VIIe		132	14 027	885

	Samples	Fish measured	Otoliths
North Sea sole all inshore			
Irish Sea, offshore	11	2 375	-
" " inshore	67	11 686	478
	78	14 061	478

HAKE

Area	Research vessels	No. of samples	No. fish measured	Aged
North Sea IVa+b+c, offshore		4	516	-
Irish Sea VIIa, offshore		37	6 508	-
Bristol Channel VIIIf		-	-	-
S.E. Ireland VIIe		5	968	-
W. Scotland VIa		38	6 509	-
W. English Channel VIIe		9	612	-

	Samples	Fish measured	Otoliths
North Sea hake all offshore			
Irish Sea, offshore	5	1 030	-
" " inshore	32	5 478	-
	37	6 508	-

WHITING

Area	Research vessels	No. of samples	No. fish measured	Aged
North Sea IVa+b+c, offshore	+	399	33 101	2 067
Irish Sea VIIa, offshore	+	117	13 452	1 200
Bristol Channel VIIIf	+	8	821	130
S.E. Ireland VIIg	+	5	623	76
E. English Channel VIId		34	2 445	-
W. " " VIIe		101	10 325	616

	Samples	Fish measured	Otoliths
North Sea, offshore	98	8 543	1 222
NE coast, inshore	295	24 014	845
E. coast, inshore	6	544	-
	399	33 101	2 067
Irish Sea, offshore	18	1 998	260
Irish Sea, inshore	99	11 454	940
	117	13 452	1 200

TURBOT

NIL all sources
Research vessels - W & NW area

SPURDOG

Area	Research vessels	No. of samples	No. fish measured	Aged
North Sea IVa+b+c, offshore		105	8 079	-
W. Scotland VIa		47	4 928	-

	Samples	Fish measured
North Sea, offshore	99	7 557
East coast, inshore	6	522
	105	8 079

SKATES AND RAYS

Area	Research vessels	No. of samples	No. fish measured	Aged
North Sea IVa+b+c, offshore		4	374	-
W. Scotland VIa		14	1 150	-
Irish Sea VIIa		107	12 459	-
Bristol Channel VIIf		6	951	-
S.E. Ireland VIIg		4	621	-

	Samples	Fish measured
North Sea skates and rays all inshore		
Irish Sea, offshore	28	4 341
" " inshore	79	8 118
	107	12 459

BLUE LING

Area	Research vessels	No. of samples	No. fish measured	Aged
W. Scotland 106A		2	220	102

LEMON SOLE

Area	Research vessels	No. of samples	No. fish measured	Aged
E. English Channel VIId		1	65	-
W. " " VIIe		124	12 022	461
North Sea IVa	+			
W & NW	+			

BRILL

	Research vessels
W & NW	+

Release of English tagged fish in ICES areas during 1978

Species	Region							Total
	104A	104B	104C	107D	107E	107A	106A	
Cod	310	289	2 056	513		34	332	3 534
Plaice		523	525					1 048
Sole		462	694			588		1 744
Whiting			355					355
Haddock	37						7	44
Coalfish	35						8	43
Turbot			3			33		36
Brill			16					16
TOTAL	382	1 274	3 649	513	-	655	347	6 820

2. Research vessel surveys

Area	Month	Objectives
North Sea 104	February-March	Cod tagging
" "	June	" "
" "	March	Young fish survey
" "	June	International 0-group gadoids survey
" "	February	Industrial stocks
" "	September-October	" "
" "	April, May, June and September	Inshore stocks - 0 and I group surveys
" "	August-September	Groundfish surveys
W. Scotland 106A	October	Deepwater stocks
Irish Sea 107A	September-October	Groundfish survey

2. Scotland

(R. Jones)

1. Research vessel activities

FRV "Explorer" and FRV "Clupez" participated in the 1978 International Young Herring Survey in February. "Explorer" also carried out surveys of pre-recruit cod haddock and whiting at Faroe (May-June), in the North Sea (October-November) and on the west coast of Scotland (November-December).

FRV "Explorer" participated in an internationally coordinated North Sea survey of O-group gadoids during the pelagic phase of their life history in June and July while FRV "Scotia" carried out a similar survey in November.

FRV "Mara" carried out a pre-recruit plaice survey off the east coast of Scotland during November and December.

Numbers of fish measured and aged are shown in Table 2.

2. Routine monitoring of demersal fish landings

Landings of cod, haddock, whiting, saithe, plaice, lemon sole and megrim were sampled to obtain size and length data for all areas fished by Scottish trawlers, seiners, light trawlers and Nephrops trawlers.

Numbers of fish measured and aged are shown in Table 2.

3. Measurement of discarding rates

Twenty nine trips were made on Scottish commercial fishing vessels to determine the numbers of haddock and whiting discarded at each age. Some length frequency data were also collected for other species.

4. Tagging Experiments

During the course of the year four commercial fishing vessels were chartered to carry out tagging operations on the west coast of Scotland. In addition, FRV "Mara" carried out a tagging experiment in the Moray Firth and the commercial boat M/B "Replenish" tagged lemon sole in Shetland waters.

Further details are provided in Table 1.

5. Sandeel and Norway pout sampling

More sandeel samples were analysed in 1978 than in previous years. From 62 samples 15 890 fish were measured, of which 801 were also weighed and aged. Fewer Norway pout samples were available, due to the closure of the Fraserburgh fishery and a decline in landings at Lerwick and Stornoway. In total, 17 604 fish were measured and 1 090 aged.

6. Field Studies in Loch Torridon

Experiments to examine the growth and feeding of juvenile cod in a sea loch have continued, and have been supplemented by laboratory experiments on the maintenance requirements of the young fish. Tracking experiments by means of acoustic tags have shown that the activity patterns of young fish are different at different seasons, the fish showing a diurnal cycle in the summer, and a nocturnal cycle in the winter.

Table 1 Numbers of fish tagged in 1978

Boat	Month	Area	Numbers of fish tagged					
			Cod	Haddock	Whiting	Plaice	L Sole	Hake
Mara	February	Moray Firth	-	-	-	1588	-	-
Steadfast	March	I Hebrides	194	-	64	-	27	-
Replenish	May	Shetland	-	-	-	-	1671	-
Scotia	August	I Hebrides	5	458	33	1918	483	-
Faithful	August	Clyde	21	12	1240	49	5	12
Jenmar	September	N Ireland	268	481	829	554	54	1

Table 2 Number of fish measured and aged in 1978

Area	Cod		Haddock		Whiting		Hake	
	Meas	Aged	Meas	Aged	Meas	Aged	Meas	Aged
North Sea								
1)	44320	10153	101563	14814	111065	12233	29	-
2)	3556	660	63905	1605	68071	2109	261	-
West Coast								
1)	26953	7515	56087	8092	35714	5055	1540	-
2)	122	110	7920	784	19563	1486	250	-
Faroe								
1)	2243	-	3639	1844	998	612	-	-
2)	1899	978	9250	1320	883	718	-	-
White Sea								
1)	737	-	448	267	-	-	-	-
2)	-	-	-	-	-	-	-	-

1) Market sampling data

2) Research vessel data

U.S.A.

(M.P. Sissenwine)

A more complete report on USA demersal fish research is contained in the USA Research Report to the Annual Meeting of ICNAF, June 1978.

During 1978, the status of stocks of more than twenty species or species groups exploited along the Atlantic coast of the USA north of Cape Hatteras was assessed. The demersal (at least partially demersal) fish stocks that were assessed are cod of the (1) Gulf of Maine and (2) Georges Bank - southern New England area; haddock of Georges Bank; redfish of the Gulf of Maine - Georges Bank area; silver hake of (1) the Gulf of Maine, (2) Georges Bank and (3) southern New England - mid-Atlantic area; red hake of (1) Georges Bank and (2) southern New England - mid-Atlantic area; pollock of Georges Bank - Gulf of Maine - Nova Scotia area; yellowtail flounder of (1) Georges Bank, (2) the Cape Code area (3) southern New England and (4) the mid-Atlantic area; flounder except yellowtail for the USA Atlantic coast north of Cape Hatteras; scup, weakfish, and other finfish (excluding species already considered, menhaden and large pelagics) for the USA Atlantic coast of north of Cape Hatteras. Stock assessment were based on length samples of commercial landings, research vessel trawl surveys, and age determinations of both commercial and research vessel catches. Commercial sampling, bottom trawl research survey and aging activity for 1978 is summarized in Tables 1, 2, and 3 respectively.

The United States has also continued research on the interactions between fish species. During 1978, preliminary calculations of the rate of consumption and production of Georges Bank nekton by age and species were accomplished. The results of these studies were reported at the ICES Symposium on the Biological Basis of Pelagic Fish Management held in Aberdeen, Scotland, July 1978 and the Symposium on Predator-Prey Systems in Fish Communities and their Role in Fisheries Management held in Atlantic, Georgia, July 1978. The large scale sampling program for food habits of Northwest Atlantic fishes conducted by the USA continued

in 1978. To date approximately 100 000 fish stomachs have been analyzed. Special attention was given to the analysis of the food habits of gadiform fishes. The results of this work have been submitted for publication to the US Fishery Bulletin. Special studies of Atlantic sea herring egg beds in 1978 revealed potentially important biological interactions between this pelagic species and several demersal species. Atlantic cod, haddock, yellowtail flounder, and winter flounder, were identified as herring egg predators. The entire ecosystem oriented data base is now being used in the development of a computer simulation of the Georges Bank fishery system.

During 1978, the USA initiated a survey of recreational catches of marine fish along the Atlantic coast. The survey system combines intercept sampling and telephone interviewing. Studies of the feasibility of using image analyzers to automatically age fish scales continued in 1978. Research is conducted on groundfish and industrial bottom fish in the Gulf of Mexico. Historical and current data are being examined to assess the industrial bottom fish fishery for croaker, spot, and sea trout. Also in the Gulf of Mexico, in 1978 sampling of discards in the USA shrimp fishery continued. This program will be discontinued in 1979. The finfish discards in the shrimp fishery may exceed shrimp catch by nearly an order of magnitude.

Marine research laboratories of individual states and universities also study demersal fish. During 1978, the State of Massachusetts implemented a standardized research vessel bottom trawl survey of its coastal waters. The State of Massachusetts and the State of Rhode Island are now planning such surveys. Furthermore, the State of Maine has conducted feasibility studies for tagging cod. The University of New Hampshire, has initiated a three year study of feasibility of fishing commercially for sand lance.

Table 1. USA Northwest Atlantic Commercial Landings Sampling Summary, 1978

Species	1978
Cod	122
Haddock	181
Pollock	23
Redfish	63
Whiting	44
Sea herring	500
Grey Sole	12
American dab	17
Sand dab	4
Mackerel	3
Sea scallops	104
Black back	48
Squid sp.	-
Squid, <u>Loligo</u>	11
Squid, <u>Illex</u>	1
Industrial	50
Butterfish	17
Fluke	48
Red hake	-
Scup	16
Tilefish	1
Menhaden	2
Surf clams	372
Ocean quahogs	110
Yellowtail	58
Lobster	3
Red crab	-
Jonah crab	-
TOTAL	1 921

Table 2. Fish Age Determination During 1978.

Species	Number
Redfish	2 065
Yellowtail	1 177
Mackerel	349
Cod	4 138
Haddock	5 198
Pollock	807
Scup	861
Silver hake	5 532
Blackback	109
Sea herring	11 193
Alewives	987
Red hake	5 277
White hake	1 644
Butterfish	57
Fourspot flounder	99
Longhorn sculpin	204
Ocean pout	127

Table 3. Bottom Trawl Survey Cruises for 1978.

Vessel	Date	No. of Stations	Area	Type of Trawl
ALBATROSS IV (USA)	18 Jan - 27 Jan	80	Southern New England to Cape May	#41 Yankee
ARGUS (USSR)	28 Jan - 2 Mar	89	Mid-Atlantic Bight to Georges Bank	Hake 815
ANTON DOHRN	25 Feb - 23 Mar	120	S. New England to Gulf of Maine	180' Herring
WIECZNO (Poland)	11 Mar - 20 Mar	35	S. New England to Mass. Bay	90' Herring
ALBATROSS IV (USA)	20 Mar - 23 May	403	Nova Scotia to Cape Hatteras	#41 Yankee
DELAWARE II (USA)	25 Jul - 20 Aug	337	Gulf of Maine to Cape Fear	#36 Yankee
DELAWARE II (USA)	5 Sep - 22 Nov	565	Gulf of Maine to Cape Fear	#36 Yankee
BELOGORSK (USSR)	10 Sep - 30 Sep	89	Georges Bank, Southern New England	Hake 815
ANTON DOHRN (FRG)	10 Oct - 18 Oct	86	Georges Bank, Gulf of Maine	180' Herring

U.S.S.R.

(V.P. Ponomarenko)

Demersal Fishes (northern)

In 1978, as in previous years, data were collected in the Barents, Norwegian, North and Greenland Seas to study the abundance, age/length composition and distribution of cod, haddock, saithe, redfish, Greenland halibut and other demersal fish in the ICES area. Samples were collected by research and scouting vessels. No racial examination was made.

Further investigations were carried out to make more accurate estimates of the state of stock and abundance of the main commercial fish, both by means of traditional young fish surveys and trawl surveys in the Barent Sea. The survival conditions of fry at different stages of development were studied; ichthyoplankton was collected and analysed. Fisheries forecasts for different terms were made, the forecasting methods were improved.

Sampling data for demersal northern fish are given in the following tables.

SAMPLING DATA (COD)

Area	Season	Number of samples taken by research vessels	Number of fish	
			Measured	Aged
Barents Sea subarea	I	15	185671	4570
	II	8	51296	2470
	III	19	89111	5732
	IV	4	17703	1161
Bear Island-Spitsbergen area	I	1	4545	235
	II	2	2358	264
	III	1	918	300
	IV	-	1768	-
Norwegian Sea subarea	I	4	6579	941
	II	6	14151	1623
	III	-	340	-
	IV	2	1718	231

SAMPLING DATA (HADDOCK)

Area	Season	Number of samples taken by research vessels	Number of fish	
			measured	Aged
Barents Sea sub-area	I	6	3705I	I739
	II	6	69052	I522
	III	18	68786	5455
	IV	3	6403	9II
Bear Island - Spitsbergen area	I	-	22	-
	II	I	8	8
	III	-	2	-
	IV	-	105	-
Norwegian Sea subarea	I	3	I443	364
	II	6	III89	II39
	III	I	I	I
	IV	-	2984	-

SAMPLING DATA (REDFISH)

Area	Season	Number of samples taken by research vessels	Number of fish	
			Measured	Aged
Barents Sea subarea	I	2	8496	400
	II	I	I2055	300
	III	-	5735	-
	IV	-	623	-
Bear Island- Spitsbergen area	I	3	6025	500
	II	2	857I	600
	III	2	37I7	600
	IV	I	I004I	296
Norwegian Sea subarea	I	4	I5I90	904
	II	8	40494	2300
	III	I	2500	300
	IV	I	6574	300

SAMPLING DATA (SAITHE)

Area	Season	Number of sam- ples taken by research vessels	Number of fish	
			Measured	Aged
Barents Sea	I	-	255	-
subarea	II	2	916	402
	III	-	110	-
	IV	-	3	-
Bear Island-	I	-	-	-
Spitsbergen	II	-	-	-
area	III	-	-	-
	IV	-	-	-
Norwegian Sea	I	I	100	32
subarea	II	4	1406	464
	III	-	-	-
	IV	7	22516	1551
North Sea	II-III	-	22318	2095

SAMPLING DATA (GREENLAND HALIBUT)

Area	Season	Number of samples taken by research vessels	number of fish	
			Measured	aged
Barents Sea	I	-	562	-
subarea	II	-	420	-
	III	-	187	-
	IV	-	158	-
Bear Island -	I	I	682	212
Spitsbergen	II	I	919	211
area	III	-	167	-
	IV	-	762	-
Norwegian Sea	I	I	927	200
subarea	II	-	193	-
	III	-	531	-
	IV	I	652	220

SAMPLING DATA (LONG ROUGH DAB)

Area	Season	Number of samples taken by research vessels	Number of fish	
			Measured	Aged
Barents Sea subarea	I	5	I9520	922
	II	2	7590	400
	III	-	I9860	-
	IV	-	2365	-
Bear Island - Spitsbergen area	I	I	I085	300
	II	-	26I5	-
	III	-	3058	-
	IV	2	I632I	50I
Norwegian Sea subarea	I	-	I09I	-
	II	-	I48I	-
	III	-	272	-
	IV	-	-	-

SAMPLING DATA (PLAICE)

Area	Season	Number of samples taken by research vessels	Number of fish	
			Measured	Aged
Barents Sea subarea	I	4	2366	432
	II	2	22I9	286
	III	8	I8704	I425
	IV	-	I6	-
Bear Island - Spitsbergen area	I	-	-	-
	II	-	-	-
	III	-	I7	-
	IV	-	-	-
Norwegian Sea subarea	I	-	I	-
	II	-	-	-
	III	-	-	-
	IV	-	-	-

SAMPLING DATA (CATFISH)

AREA	Season	Number of samples taken by research vessels	Number of fish	
			Measured	Aged
Barents Sea subarea	I	2	4068	200
	II	3	1418	283
	III	2	4259	100
	IV	-	529	-
Bear Island- Spitsbergen area	I	-	208	-
	II	-	492	-
	III	I	419	20
	IV	I	1236	100
Norwegian Sea subarea	I	-	285	-
	II	I	199	24
	III	-	72	-
	IV	-	138	-

Demersal Fishes (southern)

In 1978 eight cruises were made to different areas of the Central East Atlantic.

The trawling surveys on abundance were conducted in order to establish the state of the marine resources in the Central East Atlantic. In addition, oceanographic investigations were made and data collected for biological studies of the major fish species.

A total of 890 hauls were made and 1 160 hydrographical stations occupied.

The data on the major fish species are given on the following page.

Species	Mass Measurements	Biological Analysis	Age Samples
<u>Pagellus coupei</u>	11 804	2 537	784
<u>Dentex macrophthalmus</u>	5 036	1 260	250
<u>Dentex congoensis</u>	3 944	1 191	513
<u>Dentex angolensis</u>	619	460	150
<u>Dentex polli</u>	8 992	1 892	500
<u>Pagellus acarne</u>	5 900	3 891	873
<u>Merluccius merluccius</u>	7 676	2 264	522
Pomasasyidae	11 474	1 458	350
Sciaenidae	5 113	1 000	500
Others	1 874	750	350

The minimum abundance and biomass of 36 species were estimated.

Sparids were reported to prevail among deep-sea fish: Dentex macrophthalmus, D. angolensis, Pagellus coupei, Pomadasyiidae and Sciaenidae.

